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HAMILTON TRANSIT STUDY

MARCH 1972



De Leuw, Cather

SPECIAL COLLECTIONS
SPECIAL COLLECTIONS

The Hamilton Street Railway Company

18 Wentworth St. N.



Hamilton 21, Ontario

Founded 1873

March 14th, 1972

The Minister,
The Ontario Department of Transportation and
Communications

and

The Chairman,
The Hamilton Transit Commission.

Gentlemen:

I have pleasure in submitting, for your consideration, the Report on The Hamilton Street Railway by Messrs. DeLeuw, Cather & Company of Canada, Ltd., Consulting Engineers of Toronto. The Report was requested by the Commission, applied for by the City and contributed to by the Province.

The Report has been authorized for printing by the Hamilton Transit Study Committee appointed to supervise the Study. For ready reference, this Committee was composed of a representative from the Ontario Department of Transportation and Communications, as well as a representative from the Engineers Department, the Planning Department, the Traffic Department and The Hamilton Street Railway Company.

The Study Committee endorses the subject matter of the Report and has appended its recommendations therein.

Yours very truly,



P.A.S. Todd
Chairman

THE HAMILTON TRANSIT STUDY COMMITTEE

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SUMMARY

General

This report contains the results of a preliminary study of the transit system in the City of Hamilton. Present operations were reviewed to identify the potential for improving the effectiveness of transit in Hamilton over the short term. The study was initiated by the Hamilton Street Railway Company in cooperation with the City of Hamilton and the Ontario Department of Transportation and Communications. It was directed by the Hamilton Transit Study Committee comprising representatives from the above agencies, under the chairmanship of Mr. P.A.S. Todd, General Manager, Hamilton Street Railway Company, and was carried out by De Leuw, Cather & Company of Canada Limited, Transportation Consultants. As agreed, the study was based on available data tempered by experience and judgement rather than on the degree of detail and research ordinarily found in long term planning studies.

The principal conclusions and recommendations emerging from this preliminary study are given here. Subsequent sections of the report deal in greater detail with the various aspects studied. The terms of reference for the study are reproduced in Appendix A. Suggestions and recommendations contained in public briefs submitted to Council were considered in addition to the specific items for investigation as stipulated in the terms of reference. Comments on each brief were transmitted to the Chairman of the Technical Committee.

The Existing H.S.R. System

In 1970 the H.S.R. operated a fleet of 223 buses over 27 routes and carried 25,000,000 passengers. In common with many other urban bus transit systems, riding has declined over recent years despite increased population and more extensive service and is down 9 percent since 1967.

The review of the bus services now operating has indicated that the system is, in general, efficiently and effectively controlled and managed. The specific areas where there is an opportunity to improve the system are brought out below.

1. Route Planning

Existing transit routes within the City provide excellent coverage and most of the developed area is less than one-quarter mile from a route. One area where coverage is poor is at the Stelco Hilton Works. A number of Stelco employees work at locations which are greater than one-quarter mile from the closest H.S.R. bus route.

Route Pattern

In Hamilton the volume of transfers is a measure of the convenience of the route pattern. Some 30 percent of revenue passengers transfer between routes to complete their journey, and a number of possibilities were identified which could reduce this inconvenience.

The route network focuses on the Central Business District which is the largest and most concentrated generator of traffic in the City. Direct routes provide very good connections between most parts of the City and the Central Business District. The exception is the extreme east end of the City which is served by the Stoney Creek and Nash-Barton local buses connecting with the main routes.

The other major traffic generator is the industrial area along Burlington Street with some 37,500 employees. Transit service to this area is provided by routes which intersect or connect with those serving the Central Business District. Therefore, a large number of passengers must transfer. About 10 percent of industrial employees use transit and there should be considerable scope to increase riding. However, in this area, work locations extend over a length of three miles and employees come from all parts of the City. Thus it is difficult to provide through routes between the industrial area and

all parts of the City without superimposing another route network on the one serving the Central Business District. Although some routes connect the industrial area directly with the residential areas on the Mountain and in the Lower City, there is a potential for additional through services from the west end of the City and the Mountain. These new lines would avoid transfer inconvenience and improve the attractiveness of travel for employees in the industrial area.

The route network serving the Mountain is designed to handle travel to and from the Central Business District as well as local trips on the Mountain. Buses operate on ten north-south streets and eight east-west streets through medium to low density residential areas. This means that some routes are under-utilized and rationalization of the route network is desirable. There are now 23,000 transit trips per day to and from the Mountain, enough to warrant exploration of a higher capacity north-south transit corridor on the Mountain. This too will involve a review of the general route pattern to feed and conform with this corridor.

The preliminary investigation of existing transit routes has identified that the following changes could improve the effectiveness of transit. More detailed studies are warranted and recommended to confirm if and how they should be implemented.

- * Improved local distribution within the industrial plants north of Burlington Street to increase the accessibility to transit for employees.
- * Additional through routes between the industrial area and the west end of the Lower City and the Mountain to avoid transfer inconvenience and encourage greater use of transit.
- * Extension of the existing routes into the areas east of Red Hill Creek, to avoid transfer inconvenience. This will involve a detailed evaluation of routing within this area to develop improved routes as extensions or feeders to the extended trunk service.

- * Re-evaluation of the route pattern on the Mountain to determine if the present routes should be reduced in number and reoriented to a high capacity north-south corridor to reduce travel time and improve operating efficiency.
- * Investigation of local bus or dial-a-ride service and park-and-ride facilities to support the trunk lines and improve local service on the Mountain.

2. Scheduling

Fully 98 percent of residents are within 15 minutes access time of peak period transit service based on the walking time required to reach a route plus an average waiting time of half the service frequency. The peak period bus schedules in the lower part of the City are very frequent and provide high accessibility to the population in this area. On the Mountain, accessibility is also very good, however, peak period headways provide greater capacity than required on the outer areas of several routes.

This preliminary study did not investigate off-peak and weekend schedules. In general, they are based on policy headways and appear to be adequate to meet the traffic offered. However, a number of suggestions have been made by the public for increased off-peak service.

The routes and schedules for the extensive transit system serving Hamilton are very complex. Although these may be readily understood by the regular users, they are difficult to comprehend by casual or prospective new passengers. Simplified schedules and timetables would assist in this regard.

It is recommended that the following action should be taken with respect to scheduling.

- * Review and cost public suggestions for improved off-peak and weekend service frequencies.

- * Review all schedules and timetables to determine if these can be adjusted or presented in a form more readily understood by prospective passengers.
- * The scheduling on the following routes should be reviewed to determine if there is scope to improve their viability:

Beach
Fennell
Mohawk
Nash-Barton
Stoney Creek

3. Extent (Level) of Service

The level of transit service provided in Hamilton as measured by route miles and bus miles per capita compares favourably with that provided in other cities of roughly similar size in Ontario.

However, the passengers carried per bus mile in Hamilton is lower than in these other cities. This may be due to the high proportion of industrial employees in Hamilton. The opportunities to increase use of the transit system by improving the level of service are described under routes and schedules.

4. Equipment

A total of 208 vehicles is required to provide weekday transit service and an additional reserve of six or seven percent is provided for standby and maintenance purposes. Vehicles are effectively used and the average age of the diesel bus fleet is in line with current practice in the transit industry. However, the trolley coaches are now twenty years old and a replacement program is proposed by Management. No other action is recommended with respect to equipment.

5. Operating Costs

Operating costs per mile are below those for several other systems. This indicates that the system is efficiently and effectively managed and there

is no present requirement to investigate operating and maintenance procedures and costs.

6. Fare Structure

The present fare policy in effect in Hamilton has been determined jointly by the Hamilton Transit Commission and City Council. The Commission determines the rate required per passenger trip to enable the system to operate on a break-even basis and meet debt funding obligations. Council decides the maximum fare which regular passengers, students and pensioners should be expected to pay and provides financial support to make up the difference in revenue between the desired fares and the rate required by the Commission.

This policy encourages the use of transit as a public service by keeping fares at acceptable levels while recognizing that the transit system cannot be financially self-sufficient if service is to be provided at fares below cost. It gives a good compromise between the conflicting economic and social objectives which govern transit operations. The Province of Ontario also recognizes that public support is needed for transit and Provincial funds are available to meet up to 50 percent of operating deficits.

The present method of charging for transit service applies a flat fare for all transit trips in the City. The one exception occurs in the East End of the City where a second zone fare applies for trips crossing Red Hill Creek.

A graduated fare throughout the system, based on the distance travelled, would be more equitable. At present, the collection and policing of graduated fares on one-man vehicles causes delays to passengers and requires expensive equipment. Technological improvements are needed before a graduated fare system can be introduced in practice.

Recommendations with respect to fare structure are:

- * The present procedure, which identifies the area of community interest being supported by fares below cost, should be continued in setting fare policies in the future.
- * A flat fare structure should be continued until improved fare collection methods make a graduated fare practical, at which time the fare structure can be reconsidered.
- * Serious consideration should be given by the Hamilton Transit Commission and the Town of Stoney Creek to eliminating the zone fare which applies in the East End.

7. Service in the East End of the City

The East End of the City is served by feeder bus routes which connect with the main east-west trunk routes running into the Central Business District. A zone fare applies for passengers transferring between the feeder and trunk routes. The area is also served by Canada Coach Lines which provide limited stop service into the City.

Approximately 1,000 daily transit trips are generated in this area which has a population (including Stoney Creek) in 1971 of 20,000. Extensive development is taking place in the East End and, if the level of transit service is improved to that enjoyed in other parts of the City, the passenger volumes could reach double the present figure.

Several concepts were considered for improved service in the East End and it is recommended that these should be investigated in greater detail than was possible in the preliminary study. Items recommended for study are:

- * Extensions of existing trunk routes into the East End with feeder routes either connecting to the trunk routes or as extensions from them.
- * Elimination of the zone fare charge through negotiation between Hamilton and Stoney Creek.

- * Evaluation of limited stop routes between the East End and the Central Business District.

8. Special Express Services

The best potential for special express services occurs where travel by local transit service exceeds 30 minutes and there is adequate demand to warrant express service as well as the local services. Many passengers using express services are attracted from the local service and, unless a significant number of new passengers are attracted or the local service can be cut back, there may be an additional expense to the system.

In Hamilton the best prospects for special express services are on routes connecting the industrial area with the Mountain and between the Central Business District and the East End of the City. Services were tried between the Mountain and the industrial area nine years ago but these were not successful despite widespread publicity. Consequently, express services should only be considered if there is a positive assurance that residents want them and would use them.

The following action is recommended.

- * Express services to the industrial area should be reconsidered but only after improved local distribution north of Burlington Street and through routing of local services to avoid transferring have been fully evaluated.
- * Express service between the East End and the Central Business District is one of the options which should be reviewed as part of the detailed study of transit requirements in this area.
- * H.S.R. should make it clear to community, employee, and student groups as well as employers that it is willing to cooperate in exploring the feasibility of express services.

9. Special Lanes for Transit

The maximum volume of buses on any street in the City does not exceed 40 per hour and this is not adequate to warrant the exclusive use of a lane for bus traffic only. In fact, the buses do pre-empt the inside lane on some streets and only turning traffic enters this lane.

Bus movements also benefit by general traffic improvements. Since the study began, a number of improvements have been introduced in the downtown street network and the effect of these changes should be assessed before determining if further improvements are required to assist bus operations. It is recommended, however, that detailed study should be carried out to determine if bus delays can be reduced or avoided at the following locations:

- * The railway crossings north-east and east of the Central Business District. (These should be explored again in cooperation with the railways.)
- * The Gore Park/James Street intersection and the section of James Street immediately to the south of this intersection.

10. Control

The transit system in Hamilton is an incorporated company owned by the City. Responsibility for control is vested in the five-man Hamilton Transit Commission, four of whom are appointed by Council for a three-year period and one of whom is a Council member appointed for each two-year Council term.

The main advantages claimed for an appointed Commission are that it can provide expertise and continuity in policy and direction outside the day to day political pressures which apply to Council members.

An alternative method would be to run the transit system as a Department of the City under the direct control of Council. The proponents of this

approach believe that it enables transit operations to be more closely integrated with the financial and other responsibilities for community development which fall directly under Council's jurisdiction, also that Council is more aware and responsive to residents' needs than an appointed group.

The day to day management of H.S.R. operations is carried out by employees of the Company who report through the General Manager to the Commission. In transit systems which are run as a City Department, the management group are usually City employees. Alternatively, under either method of control, the management function may be performed under renewable contract by a private group. The objective is to achieve a more cost conscious approach to management by providing a financial incentive to equal or better the service and financial goals set by the policy group, failing which the management contract may be terminated.

In the final analysis the choice of control and management methods is largely dependent on the political and management philosophy which the community believes will achieve the most effective transit service for residents.

The Hamilton Transit Commission and the H.S.R. staff are providing transit service which compares favourably with that in other cities, and the present ownership and administrative structure was set up by the City after a great deal of research by legal, accounting and transit specialists. Accordingly, it is recommended that this work should be thoroughly reviewed and methods to improve the effectiveness of the Commission should be explored before a decision is reached that there is any real need for a change in authority and control.

11. Marketing

A brief review of the marketing and public relations activities of the H.S.R. was carried out by marketing specialists from P.S. Ross and Partners. The following short term recommendations emerged from this part of the preliminary study.

- * The public relations and marketing function should be reinstated with an annual plan and a defined budget. To do this effectively could well require that an individual with the appropriate qualifications be recruited from outside the Company.
- * The primary emphasis of the public relations and marketing function should be on advertizing campaigns in the local media oriented towards increasing ridership. The content of such advertizing campaigns should be based on periodic market research surveys so as to relate directly to the needs and concerns of both current riders and current non-riders.
- * A secondary emphasis should be placed on modernizing the Company's image with the Hamilton general public and in this context, consideration should be given to the advantages and disadvantages of preserving the Company's traditional name.
- * Maximum effort should be devoted to keeping the local media well supplied with information on the Company's activities, progress and, where relevant, problems.
- * Complaints should be systematically filed and kept for reasonable periods of time for analysis and planning purposes.
- * A standardized format should be developed for the Company's bus schedules and other "take one" material which is made available to the public.

In summary, the Company needs to take a more positive and coordinated approach to all its marketing and public relations activities. To do this management will have to take the lead and show their marketing attitude to the rest of the organization. Beyond the short-term recommendations above, it will be necessary to develop a framework for the marketing activities of the H.S.R. which will be based on a proper marketing plan with defined objectives and strategies.

Committee Recommendations

The Hamilton Transit Study Committee has examined the Consultants' findings on the eleven items included in the terms of reference for the preliminary study. There is agreement that in seven of them there is scope for improvement, also that in the other four the present practices and policies should be continued. The Committee recommends that the following action be taken.

1. Immediate Action by the Hamilton Street Railway Company

- a) Develop a program for replacement of the trolley fleet.*
- b) Introduce a more positive marketing and public relations program.*
- c) Investigate in-plant bus services to improve access to H.S.R. routes for employees within the industrial area north of Burlington Street (in cooperation with the City and the industries).*

2. Immediate Action by the City

- a) Review the present method of organization and control of transit service and identify any specific areas where improvements are needed. Determine if these can be accomplished by the Commission, through changes in the Hamilton Act governing its policies.*
- b) Contact the railways to determine how delays to transit services at level crossings can be avoided.*
- c) Determine if bus circulation can be improved in the vicinity of the Gore Park-James Street intersection.*
- d) Investigate in-plant bus services to improve access to H.S.R. routes for employees within the industrial area north of Burlington Street (in cooperation with the H.S.R. and the industries).*

3. Further Study

Detailed investigations are recommended to determine if the

following changes are warranted and, if so, how they would be implemented.

a) Routing

- *Improved local distribution by H.S.R. services in the Bay Front industrial area.*
- *Through route services between the Bay Front industrial area and the West end of the City, also between the industrial area and the Mountain.*
- *Extension of existing services into the areas east of Red Hill Creek.*
- *Rearrangement of the route pattern on the Mountain.*
- *Use of dial-a-bus to supplement main line services on the Mountain and other low density residential areas.*

b) Scheduling

- *Improved off-peak and weekend service frequencies as suggested by the public.*
- *Simplified schedules and timetables.*
- *Revised scheduling on the following routes to improve their viability: Beach, Fennell, Mohawk, Nash-Barton and Stoney Creek.*

c) Express Services

- *Express services to the Bay Front industrial area.*
- *Express or limited stop services between the East end of the City and the Central Business District.*

4. Continue With Present Practices

It is recommended that present practices and policies should be continued with respect to the following aspects of transit service.

- a) General policies governing the extent and level of service being provided.*
- b) Operational and maintenance practices and procedures.*

- c) *Policies governing the establishment of the fare structure.*
- d) *Special lanes for transit are not required at present.*

Terms of Reference for the work recommended under item 3. "Further Study" and approval for this further work should be initiated jointly by the Hamilton Transit Commission, the City of Hamilton and the Department of Transportation and Communications.

CHAPTER 1 - SCOPE OF THE STUDY

This Transit Study was carried out for the City of Hamilton, the Hamilton Street Railway Company and the Department of Transportation and Communications, under the direction of the Hamilton Transit Study Committee made up of the following members:

Mr. P.A.S. Todd, H.S.R. (Chairman)
Mr. M. MacMaster, Department of Transportation and Communications
Mr. R. Bailey, Commissioner of Planning
Mr. F.A. Cooke, H.S.R.
Mr. R. Desjardins, Traffic Commissioner
Mr. H.A. Farthing, H.S.R.
Mr. W. Wheten, City Engineer

As set out in the Terms of Reference, this study comprises two major parts:

- A. A review of and draft replies to the briefs submitted to the City Council containing suggestions and recommendations respecting the present and future transit system.
- B. A review of the present bus routes within the City with a view to identifying immediate service improvements.

The review of briefs from the public was carried out during August 1971 and draft replies were forwarded to the Chairman of the Committee for transmittal to the parties involved as requested by the City and the Hamilton Transit Commission.

The following items were identified as being of immediate concern to Part B of this study:

Route planning, schedules, extent and level of service
Equipment utilization
Operating costs compared with other systems

- Fare structure (including fare policy)
- Service in the East End of the City
- Special express services
- Special transit lanes
- Control and management structure
- Public relations and marketing

This study was conceived in two or more phases. The intent of staging the study was to focus quickly on potential changes which might be implemented in financial and practical terms over the short-term and which will be acceptable to the Committee and the public. Thus it was intended to avoid the expenditure of time and funds in detailing prospective changes which are unrealistic for physical, environmental, political or financial reasons.

In accordance with the requirements of the Terms of Reference and the directions of the Study Committee, available data on the existing H.S.R. bus system have been brought together and analyzed to identify potential areas for service development or improvement. This report describes the existing system and notes where improvement potential exists. Analysis was confined mainly to peak period services when the bulk of the traffic is handled because equipment and staff requirements, as well as the basic route network, are all governed by the weekday peaks. Off-peak service and weekend service will be reviewed in a subsequent work as appropriate. Additional work will also lead to more detailed suggestions towards implementation.

The following chapters set out the findings in more detail.

CHAPTER 2 - INVENTORY AND BUS DEVELOPMENT POTENTIAL

General

The statistics shown in the following table are mostly extracted from the eleventh annual report of the Hamilton Transit Commission covering the year to December 31, 1970. They provide a general measure of the size of the Hamilton Street Railway operations.

TABLE 1

HAMILTON STREET RAILWAY COMPANY

General Statistics - 1970

Annual Miles Operated	7,324,000
Route Miles (Trolleys, City & Suburban Routes)	342
Vehicles in Fleet	223
Annual Passengers Carried	24,946,000
Revenue Passengers Carried Per Mile	3.4
Number of Passengers Transferring	7,782,000
Passengers Carried on Selected Days:	
Monday - Friday	70,000 - 82,000
Saturday	56,000
Sunday	21,000
1970 Revenue from Operations	\$ 6,474,000
Direct Cost of Services	\$ 5,781,000
Balance to Meet Depreciation and Debt Charges	\$ 693,000

Table II serves to indicate that Hamilton compares reasonably well with some other cities for which comparative parameters are known.

TABLE II

HAMILTON STREET RAILWAY COMPANY

Comparison of Extent of Service With Other Cities (1969)

	<u>Hamilton</u>	<u>Average of Three Other Cities</u>
Route Miles per 1,000 Capita	0.42	0.51
Bus Miles per Capita	18.9	18.7
Revenue Passengers per Bus Mile	3.4	4.0

The Hamilton service is comparable with the services provided in other cities in the same size range.

Bus Routes

Exhibit 1 shows the 27 bus routes operated by the Hamilton Street Railway in the City of Hamilton during September 1971. Two routes, namely Burlington and Stoney Creek, operate partly outside the City limits while the Dundas route serves passengers to and from the Town of Dundas without providing City service in Hamilton. The routes which serve outside the City are included with the statistics of the City system to permit reconciliation with system accounts.

The system operates mostly on a grid pattern. In the Lower City, the whole system is founded on the major east-west routes; i.e., the trolley coach routes, Barton, Cannon and King, supported by the two major east-west bus routes, Bay Front and Delaware-Main West-West Hamilton. There appears to be a problem in this routing in that many of the employees from the industrial area are required to transfer from an east-west route to a north-south route to get to work.

Exhibit 1 also indicates major transfer points which are mostly in the Hamilton Central Business District or on the trolley coach routes south of the major industrial area.

Coverage

Exhibit 2 shows route coverage. It is generally recognized that most passengers will accept a walking distance of up to one-quarter mile to the closest bus route. The map shows that practically all of the developed area of the City is less than one-quarter mile from a route, thus coverage is considered very good.

Sections of the industrial area including the Stelco Hilton Works are more than one-quarter mile from established H.S.R. routes. Although some internal circulation is provided within the Stelco site by an independent bus operator, this does not appear to provide direct and convenient transfer possibilities for workers using City buses. Means should be sought to facilitate connections with existing services and thereby increase the available level of service. This basic approach should be given priority over such things as express/worker buses mentioned later in this report.

Land Use and Major Traffic Generators

Exhibit 3 shows the land use in the City of Hamilton. The City area is divided into two parts by the escarpment of the Mountain with only a very limited number of connections between the upper and lower parts. The major industrial employment of the City is concentrated around the south shore of Hamilton Harbour and much of the older residential accommodation is immediately south of this industrial area. The Central Business District, containing the major commercial concentration spreads out from the intersections of the four major streets - King Street, Main Street, James Street and John Street, with King and Main giving service

in the east-west direction, James and John giving service in the north-south direction and providing the major historic link with the Mountain. In the Mountain portion of the City, development has spread southward from the escarpment and is concentrated in the area outlined on Exhibit 3. Beyond this area a lesser density of residential development is scattered along the concession roads.

Accessibility - Level of Service

While coverage (i.e., distance from a bus route) is one factor used to assess the adequacy of a bus system, passengers are also concerned with frequency of service on the route. The accessibility index shown on Exhibit 4 is a compilation of walking distance and bus frequency and represents the walking time to the route plus the possible passenger waiting time (assumed to be half the bus headway). Exhibit 4 shows that most Hamilton transit passengers live, work and shop well within the 15-minute accessibility generally accepted by passengers. In fact, as shown in the table below, more than half of the Lower City residents enjoyed accessibility times less than five minutes, while the majority of residents on the Mountain have accessibilities in the 5-10 minute range.

TABLE III

HAMILTON TRANSIT STUDY

Residential Accessibility in the P.M. Peak Period

	<u>Total Population (1970)</u>	<u>Less Than 5 Mins.</u>	<u>5-10 Mins.</u>	<u>10-15 Mins.</u>	<u>15-20 Mins.</u>	<u>More Than 20 Mins.</u>
Lower City	194,500	112,000	71,300	10,400	700	100
Mountain	103,800	16,900	68,300	15,100	2,400	1,100
Whole City	298,300	128,900	139,600	25,500	3,100	1,200

With the possible exception of the East End of the City, the routes and peak-hour schedules provided by the H.S.R. have been found to be very good.

Table IV shows some general statistics referring to the 27 H.S.R. routes. As reflected in the high peak-hour accessibility, many routes have headways of 15 minutes or less during the peak period. Certain routes stand out as being of major importance to the system, for example, a great proportion of total bus mileage and patronage occurs on the following routes:

Barton
Bay Front
Cannon
Delaware-West Hamilton-Main West
Fennell
King
Upper Sherman

These seven routes together account for almost 60 percent of total bus miles and more than 65 percent of total passengers carried. With the noticeable exception of Fennell, these important routes also exhibit a reasonable ratio of passengers per bus mile and revenue per bus mile, although there may still be room for improvement, particularly where revenues fall below the \$0.85 - \$0.90 range.

Routes which exhibit low patronage and low revenues should be the subject of continuous scrutiny. Particular attention should be directed to:

Beach
Mohawk
Nash-Barton
Stoney Creek

Amongst these, Nash-Barton is a relatively new route operating in peak hours only and may be expected to improve its position in the future.

The Fennell route is the longest of the City routes providing an E-W service on the Mountain and a N-S connection to the Industrial Area via the Kenilworth Access and Ottawa Street. In view of the fact that it accounts for 7.6 percent of total bus miles on the system, the passengers and revenue are low. From this preliminary analysis it is not clear whether this is predominantly an off-peak problem. Later suggestions to experiment with express/worker buses may help to improve the operating characteristics in this corridor.

Transfers

From the general statistics in Table I it was apparent that 24.9 million revenue passengers used 7.8 million transfers; i.e., 32 percent of annual revenue passengers use transfers. In recent studies for two other cities, the average number of transfers was about 21 percent of revenue passengers.

From the statistics in Table IV it is evident that some 23 percent of the total passengers on an average route in the H.S.R. system are using transfers. This ratio is greater than 30 percent on five routes and reaches 38 percent on the Parkdale route. A major objective of any system improvement should be to effect a reduction in the number of transfers, since the time and inconvenience of a transfer deters a passenger's acceptance of the system.

One day's transfers have been analyzed in more detail and this information is presented in Table V. Analysis of Table V indicates that some 14,000 transfers occurred daily in the C.B.D. and a further 7,000 were direct route-to-route transfers in other parts of the system. Only about 400 passengers of the total of 21,000 transferring made use of double transfers between non-intersecting routes. This data was

collected in September 1971 shortly after the strike. Typical pre-strike transfers totalled more than 25,000 daily.

A later phase of this study should review the transfer information in greater detail to determine whether some through routing across the Central Business District or emphasis on routes bypassing the C.B.D. via the newly-opened Victoria/Wellington/Claremont access connections could reduce the number of passenger transfers required in the system.

Demand/Capacity

Exhibit 5 gives a general indication of the ratio of passenger demand to bus capacity on the various routes as estimated for the peak period. From this exhibit it can be seen that most of the routes to the Mountain, as well as the major east-west routes in the Lower City, are carrying standing loads for some distance away from the C.B.D. On the Mountain particularly, the passenger loads drop sharply as the buses run southward from the escarpment. The southerly extremities of various routes, especially the Upper Ottawa route, show very low patronage during the peak period. This is partly the effect of running at peak period headways of 15 minutes even where residential densities are quite low. The need to continue this schedule frequency on some routes even in peak hours should be reconsidered. This should involve a wider study of passenger trips by time of day and may also involve analysis of origin/destination patterns.

Areas of Delay

Exhibit 6 shows areas of delay experienced by the H.S.R. system. In the C.B.D. delays are fairly common and frequent due to various operating difficulties, including traffic congestion and curbside truck loading and parking occurring in violation of existing regulations.

One particular problem is the left-hand turn made by many vehicles

including buses from Gore Park onto James Street which conflicts with crossing pedestrians. Tentative discussions have been undertaken with the City Traffic Engineer to see if pedestrians might be confined to the northerly crosswalk only, but in view of the pedestrian volumes and their origins and destinations, such a restriction does not appear reasonable. Therefore, it is suggested that further exploration be undertaken with the City Traffic Engineer with a view to revising the signal phases at this location to redistribute the time allocated to pedestrians and buses.

The bus operators also report that a number of annoying delays occur at various at-grade railway crossings north and east of the C.B.D. To some extent this is aggravated by the fact that shunting trains do not always clear the signal block circuit. Since a bus driver is not permitted to proceed while the warning signals continue, failure to clear a switch can result in unnecessary bus delays. The problem appears to warrant further specific discussion with the railway companies involved.

During 1971 buses suffered a number of delays caused by construction on important bus routes including the reconstruction of King Street. However, the City Traffic Engineer has indicated that much of the construction is now completed and the new Victoria and Wellington routes are in service providing additional access to the Mountain. It is to be hoped that such delays will be far fewer in 1972.

General Conclusions

Apart from the specific items already mentioned in this chapter there are some more general areas for further consideration which emerge from this preliminary study.

While our examination shows the routing and scheduling to be generally more than adequate, there is always room for some improvement. In the interests of economy, the routes which have low patronage could have

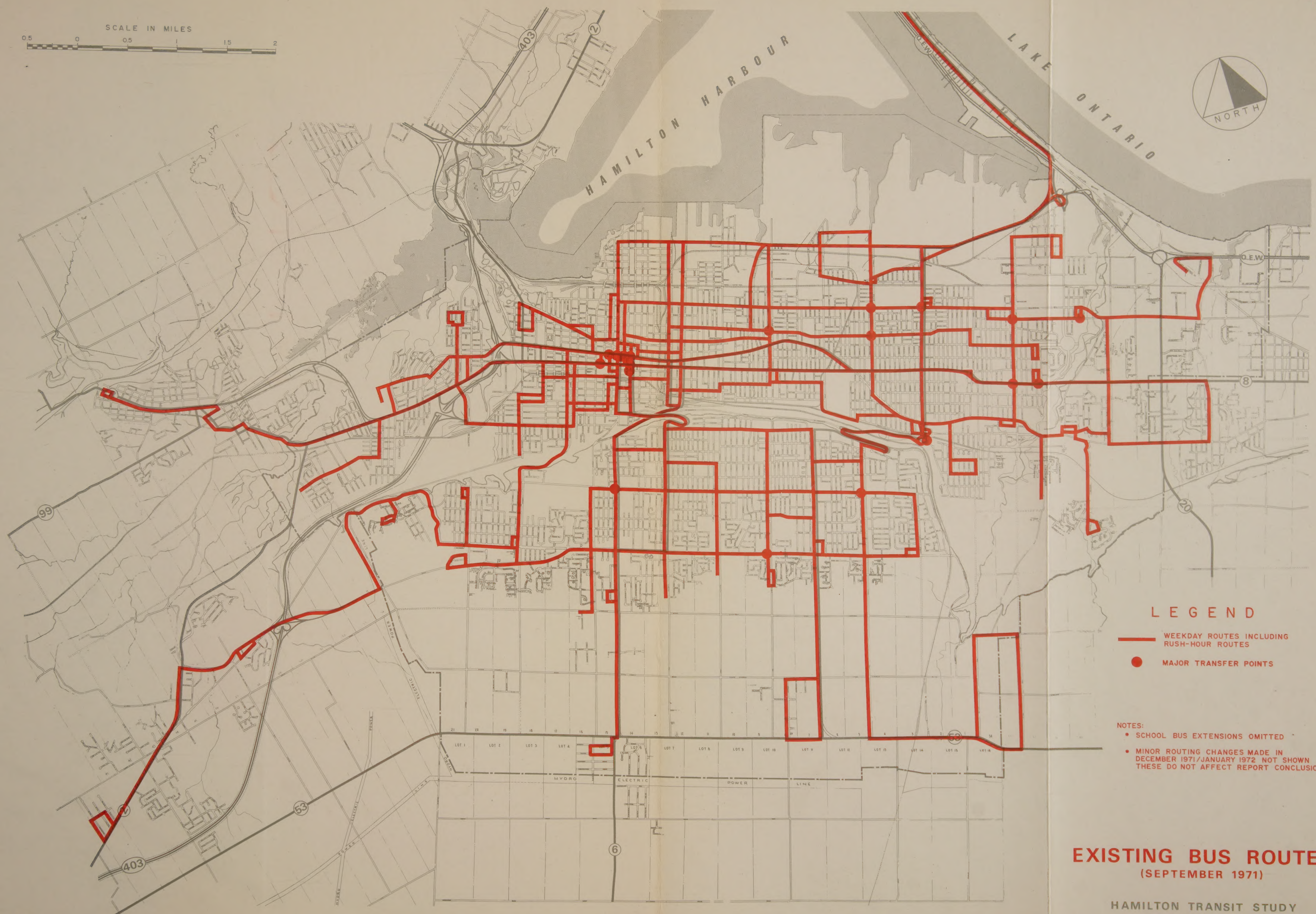
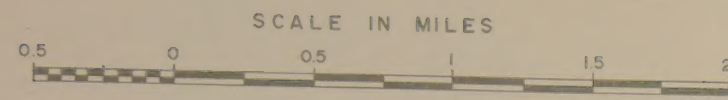
their schedules reduced, however, even the best patronized routes should come under constant scrutiny to be sure that the patterns of service are properly integrated with the patterns of demand, and that off-peak and evening services are consistent with passenger requirements.

There are some major obstacles which affect eastward extension of trolley coach routes. Much of the new development in Hamilton is occurring east of the Red Hill Creek and bus passengers from this area are required to transfer between local buses and trolley coaches. Rearrangement and extension of services to the East End is discussed in the next chapter of this report.

On the Mountain the major routes are the north-south routes which have developed by progressive extension from Concession Street. Although under present conditions, the east-west routes on the Mountain appear to perform poorly, development has now progressed to a point where it should be possible to explore a major reorientation of the Mountain routes. If the collection and distribution of passengers could be effectively performed on the more widely spaced east-west streets, this might permit efficiencies and service reductions to be made on the existing north-south routes. The east-west routes would act as collectors until reaching Upper James Street, Upper Wellington Street and Upper Ottawa Street. Thereafter they could be operated as limited stop routes to the C.B.D. and Lower City. Such a revised pattern of service could be a forerunner of the rapid transit system which has been recommended in other studies.

The integrated scheduling of vehicles and drivers on a system the size of Hamilton's is a complex operation. The operator has attempted, in the arrangement of the bus schedules, to dispatch vehicles at regular intervals from both ends of all routes. Unfortunately, however, this regular pattern is not always clearly discernible in the schedules made available to the public. Minor variations of a few minutes, the scheduling of extra runs, the use of headways which are not fractions of an

hour, and the use of 3, 4 or 5 different terminal points on a route all tend to impede the passenger's comprehension of the service provided. Every effort should be made to further refine schedules in any way which will make them more readily understandable by the traveling public.



LEGEND

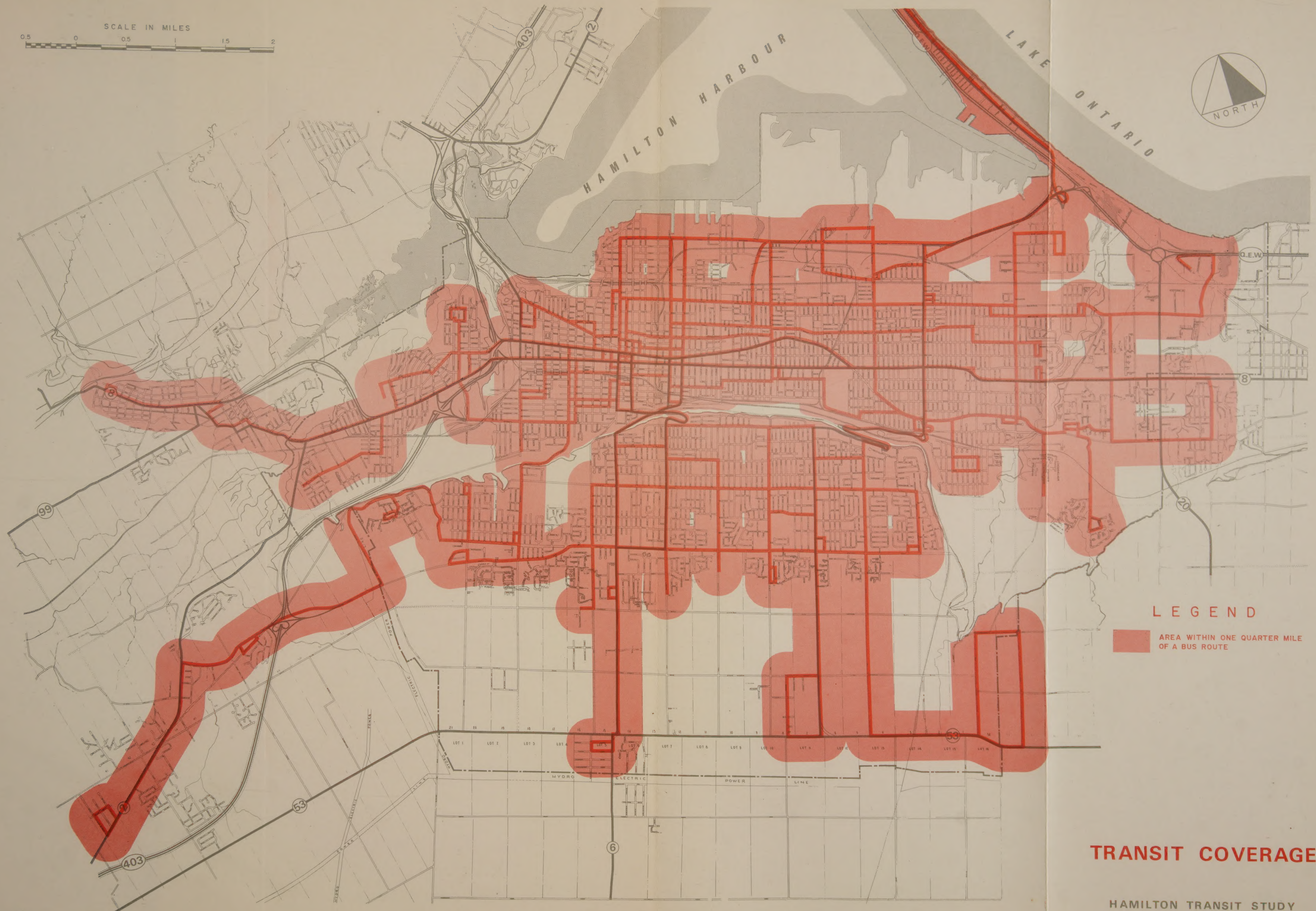
- WEEKDAY ROUTES INCLUDING RUSH-HOUR ROUTES
- MAJOR TRANSFER POINTS

- NOTES:
- SCHOOL BUS EXTENSIONS OMITTED
 - MINOR ROUTING CHANGES MADE IN DECEMBER 1971/JANUARY 1972 NOT SHOWN THESE DO NOT AFFECT REPORT CONCLUSIONS

EXISTING BUS ROUTES
(SEPTEMBER 1971)

HAMILTON TRANSIT STUDY
PHASE I

SCALE IN MILES
0.5 0 0.5 1.5 2



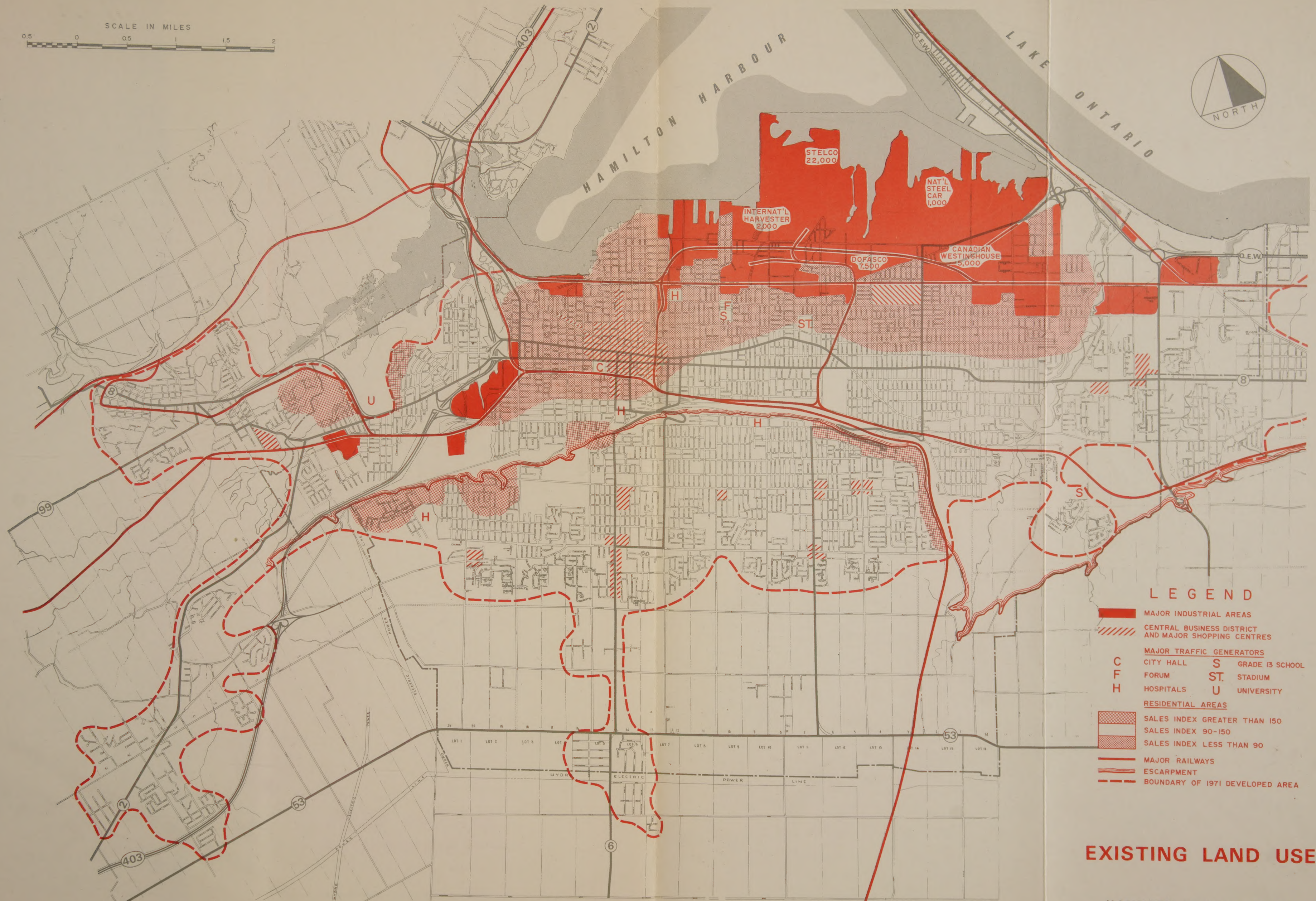
LEGEND

AREA WITHIN ONE QUARTER MILE
OF A BUS ROUTE

TRANSIT COVERAGE

HAMILTON TRANSIT STUDY
PHASE I

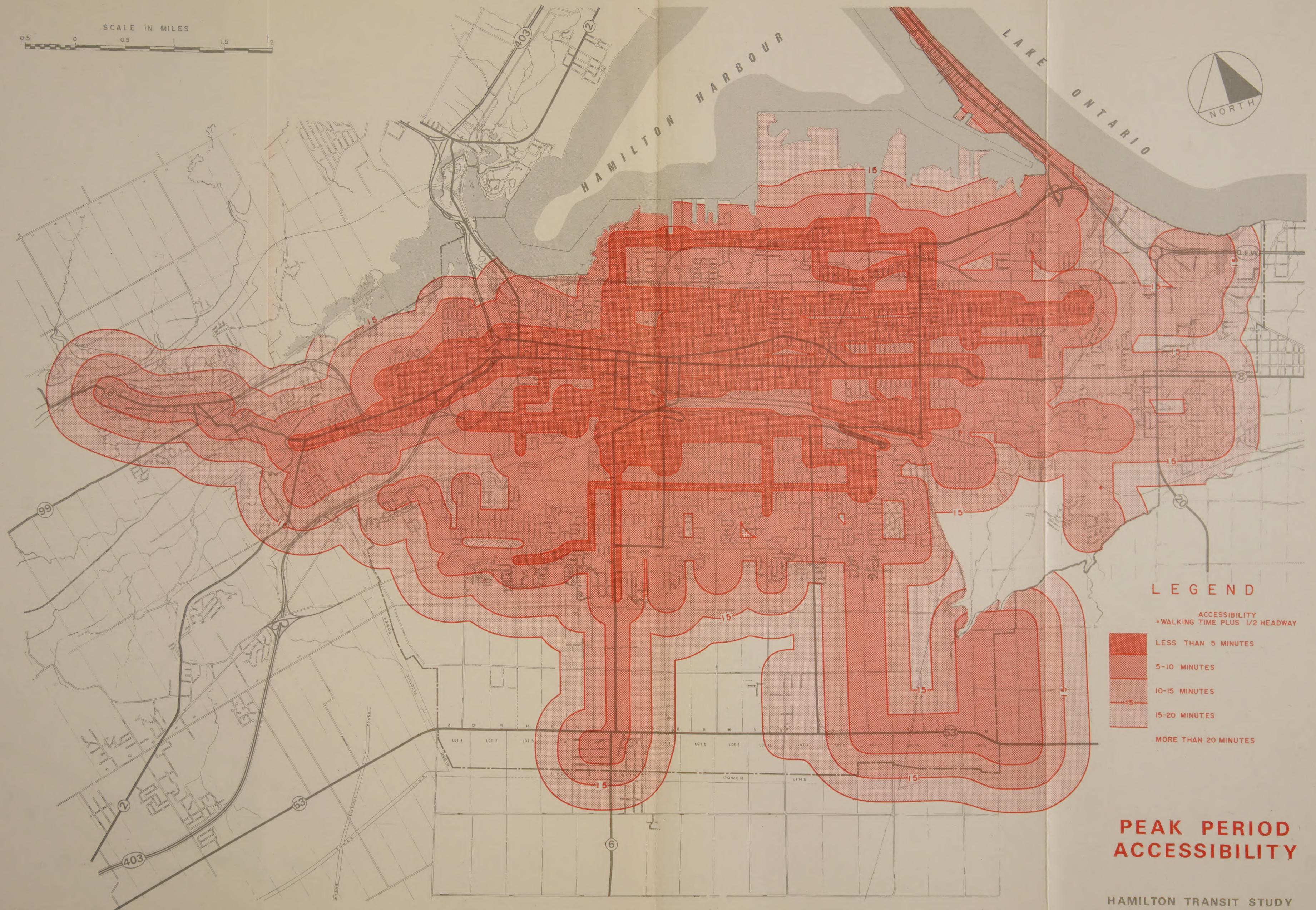
SCALE IN MILES
0.5 0 0.5 1 1.5 2



EXISTING LAND USE

HAMILTON TRANSIT STUDY
PHASE I

SCALE IN MILES
0.5 0 0.5 1 1.5 2



LEGEND

ACCESSIBILITY
= WALKING TIME PLUS 1/2 HEADWAY



LESS THAN 5 MINUTES
5-10 MINUTES
10-15 MINUTES
15-20 MINUTES
MORE THAN 20 MINUTES

PEAK PERIOD
ACCESSIBILITY

HAMILTON TRANSIT STUDY
PHASE I

SELECTED 1970/71 ROUTE OPERATING STATISTICS

Route Name	Length of Route Round Trip (miles)	Average Route Speed Per Peak (mph.)	Bus Headways		Peak Bus Assignment (no.)	% Total 1970 Bus Miles (%)	% Total 1970 Bus Passengers (%)	% Passengers Transferring By Route ⁸ (%)	Ratio Passengers Per Bus Mile ⁷ (No.)	Revenue Per Bus Mile (¢)
			10:00 a.m. - 12 Noon (mins.)	4:30 - 5:30 p.m. Peak Hour (mins.)						
Aberdeen	7.7	10.2	10	5	8	3.7	3.5	26	4.1	77
Barton	11.6	9.7	15	4	19 (TC)	9.4	14.8	24	7.0	135
Bay Front	13.7	10.3	15	7	12	8.0	8.4	32	4.6	81
Beach	10.2	21.1	-	15	2	0.4	0.2	27	2.3	46
Burlington ¹	26.3	15.5	60	30	5	3.9	2.2	6	2.3	72
Cannon	9.8	10.3	10	6	10 (TC)	5.6	5.9	19	4.6	96
Delaware - West Hamilton - Main West	21.4	13.4	10	5	21	14.7	15.4	22	4.6	92
Dundas ²	12.9	13.3	30	15	5	3.0	1.5	-	2.2	73
Fennell	21.4	12.3	16	10	9	7.6	5.1	24	3.0	58
King	9.4	10.3	6.5	4.5	14 (TC)	8.0	12.0	24	6.7	129
Locke	4.2	9.7	15	7	4	2.2	2.8	29	5.5	100
Mohawk	10.0	14.6	20	15	3	2.6	1.0	16	1.6	35
Nash-Barton	9.0	18.0	-	20	2	0.1	0.1	24	1.7	33
Parkdale	7.3	15.1	30	10	3	1.6	1.3	38	3.7	58
Sanatorium	15.1 ³	16.2	30	15	4	2.4	2.1	22	3.9	76
Sherman	3.4	8.2	-	15	2	0.4	0.5	32	4.4	75
Stoney Creek	8.3	16.6	30	20	2	1.4	0.6	32	1.9	34
Upper Gage	14.4 ⁴ (13.2)	16.3	30	30	2	2.0	1.2	18	2.7	56
Upper James	9.7 ⁴ (11.1)	12.4	15	7.5	7	4.6	4.5	26	4.3	82
Upper Kenilworth	12.2 ⁴ (11.0)	13.8	30	15	5	2.7	2.6	20	4.2	85
Upper Ottawa	20.4 ⁴ (19.2)	18.0	30	15	4	3.1	2.4	22	3.2	63
Upper Sherman	10.0 ⁴ (8.8)	12.8	15	7.5	11 ⁶	5.1	5.1	22	4.5	88
Upper Wellington	7.2 ⁴ (6.8)	12.7	16	10	4	2.3	2.1	23	4.1	79
Upper Wentworth	7.6 ⁴ (7.2)	11.4	15	10	4	2.8	2.3	21	3.6	73
Victoria ⁵	4.5	9.6	-	20	2	0.3	0.2	26	2.8	54
W.Hamilton (Univ.)	6.4	12.0	20	10	4	0.4	0.5	24	5.7	107
York	3.1	10.3	10	10	2	1.5	1.8	31	5.1	91

Notes: 1 Burlington and Stoney Creek routes operate inside and outside city.

2 Dundas route serves passengers outside city.

(TC) indicates Trolley Coach route.

3 Some Sanatorium services also operate to Spring Valley, Ancaster.

4 Mileages shown are for Detour operations as in 1971 In 1972 routes reverted to regular Jolley Cut routings (Mileages in brackets)

5 Victoria route deleted in 1972 in favour of Upper James-Claremount

6 Including school hour extras on Upper Sherman

7 Includes both revenue and transfer passengers

8 Ratio expressed as transfers collected ÷ by total revenue and transfer passengers

100%

100%

average
23%

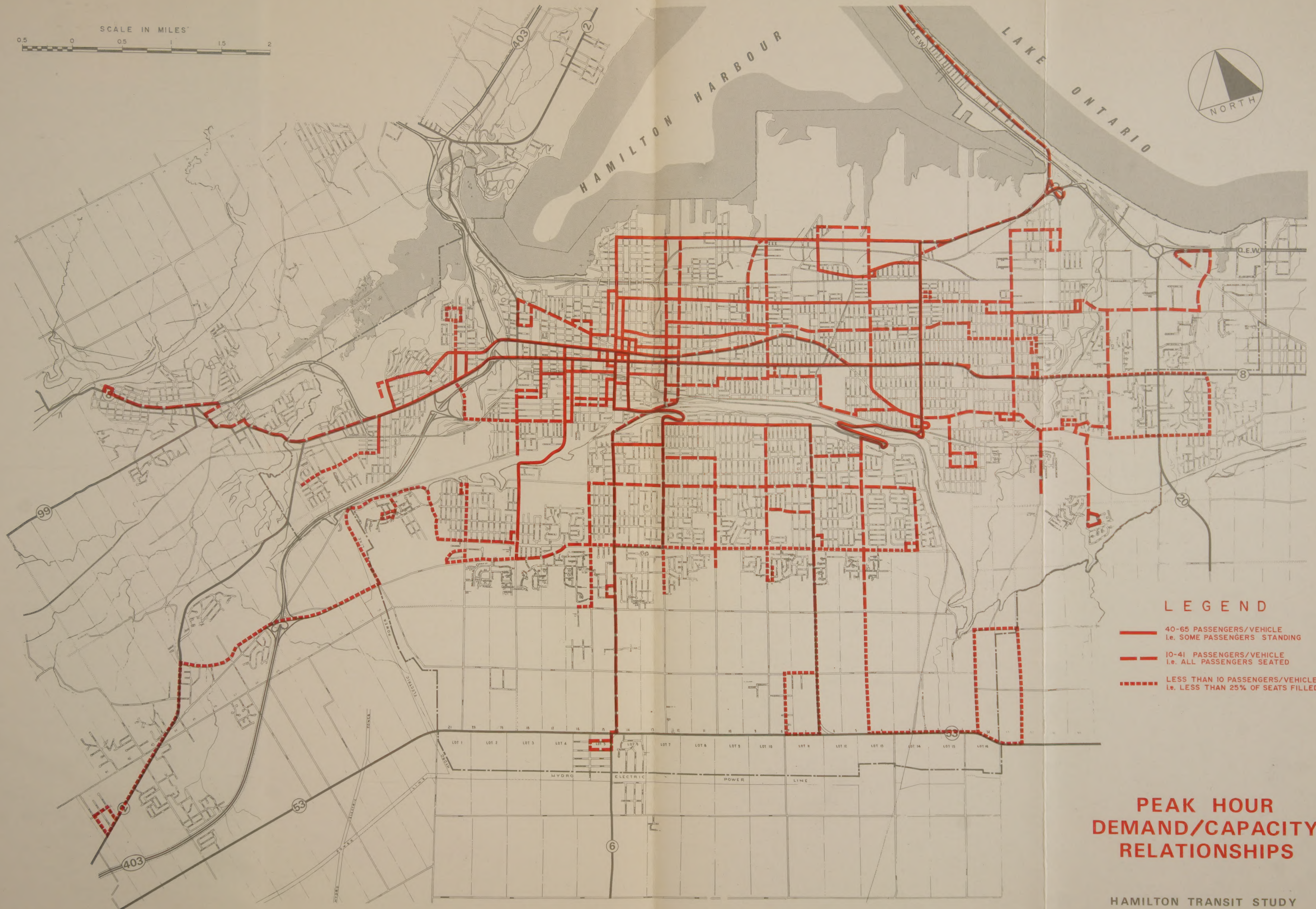
average
4.4

average
.87¢

TABLE V

HAMILTON TRANSIT STUDY
 Analysis of Transfers by Route Issued and Route Collected
 (Tuesday, September 14th, 1971)

FROM \ TO	Barton	Del/Vh/Mw	King	Bay Front	Fennell	Cannon	Upper James	Upper Sherman	Aberdeen	Locke	Sanatorium	Parkdale	Upper Ottawa	West Hamilton	Upper Wellington	Upper Wentworth	York	Upper Kenilworth	Upper Gage	Mohawk	Stoney Creek	Burlington	Sherman	Nash-Barton	Beach	Victoria	TOTALS
Barton	40	530	250	390	280	100	140	190	230	140	90	250	80	80	100	90	100	60	60	10	-	-	30	60	20	-	3320
Del/Vh/Mw	400	110	210	400	120	130	180	250	120	50	90	70	60	20	80	70	40	50	30	10	20	-	40	-	-	10	2560
King	220	330	-	380	170	30	210	190	120	110	100	60	70	100	90	110	80	90	40	-	80	-	30	-	-	-	2610
Bay Front	430	320	450	20	150	170	100	90	90	70	60	20	50	50	50	30	50	70	20	10	20	-	10	10	-	-	2340
Fennell	240	190	170	190	20	120	130	40	10	-	30	10	40	10	20	20	10	40	20	30	20	-	10	10	-	-	1380
Cannon	50	90	20	140	70	10	80	50	50	50	50	50	20	40	30	40	20	20	30	-	-	-	10	20	-	-	940
Upper James	180	180	170	90	100	60	-	-	30	50	10	-	20	20	30	10	30	20	10	70	-	-	-	-	-	10	1090
Upper Sherman	220	190	150	60	40	90	20	70	50	40	10	10	20	50	20	20	20	10	10	40	-	-	-	-	-	-	1140
Aberdeen	80	140	90	60	-	70	30	30	10	20	-	10	20	30	10	20	10	20	10	-	-	-	20	-	-	-	680
Locke	180	50	110	80	-	20	30	20	20	-	10	-	10	10	10	10	-	10	10	-	-	-	-	-	-	-	580
Sanatorium	110	60	190	20	20	50	-	-	10	10	-	-	-	10	-	-	10	-	-	10	-	-	-	-	-	-	500
Parkdale	190	130	90	10	-	50	-	-	-	-	-	-	-	-	-	-	10	-	-	-	10	-	-	-	-	-	490
Upper Ottawa	80	70	60	30	50	30	20	-	20	20	10	-	-	20	10	-	20	-	-	10	-	-	-	-	-	-	450
West Hamilton	80	40	110	20	10	40	50	40	20	10	40	-	30	-	40	30	10	40	30	-	10	-	10	-	-	-	660
Upper Wellington	80	100	70	50	30	30	-	30	20	20	10	-	10	20	-	-	20	10	-	10	-	-	-	-	-	10	520
Upper Wentworth	140	90	130	30	30	40	10	-	20	20	10	-	10	20	-	-	20	10	-	10	-	-	-	-	-	-	590
York	70	30	50	70	-	60	30	20	20	10	10	10	10	-	10	10	-	10	10	-	-	-	-	-	-	-	430
Upper Kenilworth	110	140	80	60	60	20	20	-	20	20	10	-	-	20	10	-	10	-	-	10	-	-	-	-	-	-	590
Upper Gage	30	20	30	-	10	-	10	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	110
Mohawk	-	10	-	10	10	-	60	20	-	-	10	-	10	-	10	10	-	-	10	-	-	-	-	-	-	-	160
Stoney Creek	-	30	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130
Burlington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	20
Sherman	30	10	10	20	10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
Nash-Barton	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	50
Beach	80	20	10	20	10	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	150
Victoria	20	10	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
Totals	3080	2910	2550	2160	1190	1130	1120	1040	860	640	550	490	470	500	530	470	490	460	290	220	160	-	160	100	20	30	21,620



LEGEND

- 40-65 PASSENGERS/VEHICLE
i.e. SOME PASSENGERS STANDING
- - - 10-41 PASSENGERS/VEHICLE
i.e. ALL PASSENGERS SEATED
- ... LESS THAN 10 PASSENGERS/VEHICLE
i.e. LESS THAN 25% OF SEATS FILLED

PEAK HOUR
DEMAND/CAPACITY
RELATIONSHIPS

HAMILTON TRANSIT STUDY
PHASE I



LEGEND

- RAILWAY LINES CAUSING CONFLICTS
- DELAYS CAUSED BY RAIL/ROUTE CONFLICTS
- DELAYS CAUSED BY TRAFFIC CONGESTION
- DELAYS CAUSED BY CURB PARKING AND TRUCK LOADING

AREAS OF DELAY

HAMILTON TRANSIT STUDY
PHASE I

CHAPTER 3 - ITEMS OF SPECIFIC INTEREST

Equipment Utilization

Normally the H.S.R. operates with a fleet reserve of 6 percent to 7 percent. In late 1971 a 10 percent standby was available. At this time there were 235 vehicles on hand to meet a daily demand of 208 vehicles for regular scheduled routes and for school charters. The slight increase in standby capacity at this time was achieved by retaining some vehicles which would normally have been disposed of. This was done pending a stabilization of demand which was expected to occur some time after the strike settlement and after the start of the new school year. Even with 235 vehicles the fleet size is within reasonable operating limits consistent with the services being offered.

There are 178 44-seater diesel buses in the H.S.R. fleet. Of these 100, which provide the base service, are 1-7 years old. The remaining 78, which are used for ancilliary services, are 11-16 years old. Ten smaller vehicles, 31-seater gasoline powered buses, are used on the Mohawk, Nash-Barton and Stoney Creek service. They are 10-11 years old.

Hamilton's 47 trolley coaches were purchased in 1950 and 1951 making them now 20 years old because replacements have not been available. Since they are now approaching their limit of useful life a decision will be required in the near future as to how these vehicles are to be replaced. Such replacement may be with new or rebuilt trolley coaches or with self-propelled vehicles. The choice will depend upon their prospective utilization and the economic factors involved.

Some benefits accrue to the H.S.R. system by virtue of sharing maintenance facilities with Canada Coach Lines and by having reciprocal arrangements for loaned vehicles if required.

The indications of this study are that the equipment which makes up the H.S.R. fleet is effectively utilized, consistent with normal routine maintenance requirements.

Comparative Operating Costs With Other Systems

The following table is a comparison with the average operating costs of four properties of similar size.

TABLE VI
OPERATING COSTS/MILE

Comparison With Other Cities (1969)

	<u>Hamilton</u>	<u>Average of Three Other Cities</u>
Operators' Wages	\$ 0.36	\$ 0.35
Fuel and Power	0.06	0.07
Maintenance and Repairs	0.13	0.15
Administration, General & Other	0.19	0.23
Total Operating Costs	<u>\$ 0.74</u>	<u>\$ 0.80</u>
Depreciation & Debt Funding	0.07	0.09
Total Cost/Revenue Mile	<u>\$ 0.81</u>	<u>\$ 0.89</u>
Total Revenue/Revenue Mile	\$ 0.84	\$ 0.84

The Hamilton figures compare well with those from other cities and no further action on operating costs is required at this time.

Fare Structure and Policy

This section of the report discusses the alternative pricing policies which can be applied to transit services. Two main elements are involved: the method of charging and the rate or price charged for service.

Method of Charging

Two basic charging methods can be used: a flat fare, or a fare which varies in relation to the service provided.

The *flat fare* charges the same rate for all passengers regardless of the distance travelled. It is equitable in that all the residents in a community pay the same fare for transit service and there is no discrimination between the passengers although there may be differences in fares between age groups.

The flat fare method is in widespread use in North America and is simple for both the user and the operator. It has the disadvantage, however, that fares are not related directly to the service provided, and in effect, it discourages and discriminates against passengers making short trips and favours the longer distance passengers.

The *variable fare* approach is designed to be equitable to all passengers in that the fares are related to the service received. The fares applied start at a basic minimum for the shortest trip and increments are added, usually on the basis of the distance travelled. This type of fare structure has the disadvantage that it is difficult for the irregular user to understand and more complex to issue, collect and enforce fares than the flat fare system, particularly on one-man operator vehicles. There is a need for improved methods and technology for fare collection on bus systems if this method is to gain widespread acceptance.

In North America there is a move towards fare by distance on several rapid transit systems including BARTD in the San Francisco area, PATCO in the Philadelphia area, and the Illinois Central Suburban Rail System.

In summary, the flat fare structure charges a uniform fare for transit service throughout the community, but there is discrimination in favour of the longer distance users. The graduated fare system avoids this discrimination and is more equitable because charges are set proportional to use. However, at present the collection and policing of graduated fares on one-man operator vehicles causes delays for passengers and requires relatively expensive equipment costing \$1200 to \$5000 per unit. Thus, while a graduated fare is the desirable objective in transit, its adoption should be weighed against the inconvenience it may cause to passengers and the cost of collecting and validating fares. Improvements are being developed which may lead to the widespread adoption of a graduated fare system.

Rates of Fare

Policies in this respect should be based on the social, regulatory and economic objectives set by the owner of the transit system. Usually there are conflicts between these objectives and a compromise has to be achieved.

The policy adopted will have a major effect on the fares charged. At one extreme there is the philosophy that all costs should be met from the farebox with equitable charges proportionate to the cost of service, regardless of ability to pay. The other extreme is to consider transit as a free public service whose use should be encouraged in the best interests of the overall community. The first approach would cost the taxpayers in Hamilton nothing and the second method would involve support amounting to at least \$8,000,000 from City and Provincial funding sources.

The factors to be considered in setting a fare policy are:

- (a) The level of the service to be provided and the cost to provide such service.
- (b) The ability of the passengers to provide revenues to meet these costs in whole or in part.
- (c) The ability of the community to meet these costs in whole or in part as related to other funding requirements.

In practice, the rates of fare in Hamilton have been set based on a combination of each of these factors.

Briefly the *level of service* provided is based on a policy that residents should be within 1/4 mile of a transit route and that the frequency of service should be tailored to demand but should be not less than 15 minutes at peak periods or 30 minutes at other times on all but minor routes. This is a reasonable policy by standards in the transit industry and any improvements desired would naturally increase costs.

City Council has agreed with the Hamilton Transit Commission that the maximum *passenger fares* which regular passengers should be expected to pay is 30 cents

for cash fares or four tickets for one dollar, and that students and pensioners should be expected to pay less than these fares. Present policy is to charge a flat uniform fare for each class of passenger regardless of the distance travelled although there are some time limitations on student tickets. The resulting revenues are not sufficient to meet the cost of the level of service being provided and the fares are designed to encourage the use of transit as a public service in the community by keeping them at a low level.

In setting the above fare policy the Commission and Council has, at the same time, maintained the financial viability of the system by meeting the difference between transit costs and revenues from general tax revenues. The cost of services has been determined by the Commission to be 40 cents per cash ride or $36\frac{2}{3}$ cents for passengers buying multi-ride tickets at three for \$1.10. These are the average costs to provide service for all passengers including scholars and pensioners. The difference between these costs and the fares charged is met by the community. This approach has the great advantage that the cost of meeting social objectives can be clearly identified and separated into the categories of:

- general support for regular passengers;
- support for education; and
- support for the welfare of pensioners.

In addition, the economic objectives of management are clearly confined to transit service and not beclouded by cross subsidization of other social objectives adopted for the community.

The present fare policy in effect in Hamilton has been determined in a rational way and it can be modified at any time to change the level of service or fare structure if desired. An excellent procedure has been adopted for the allocation of deficits which identifies the area of community interest being supported by fares below cost. This enables realistic cost targets to be set for the transit agency which recognizes that the cost of social service obligations should be supported by the whole community and not solely by the transit agency and its regular passengers. It also enables the effects of fare policies which

discriminate in favour of one sector of the community to be priced and compared with the tangible or intangible benefits they may realize, before they are adopted.

Accordingly, we would recommend that this practice should be continued in determining future changes in fare policy. The effects of fares on riding is the subject for continuing research to assist in setting fare policies for peak and off-peak transit services.

Review of the East End of the City

Much of the current development of Hamilton is occurring east of Red Hill Creek and several of the public briefs referred to routing and scheduling difficulties in this area. One particular issue of concern is the present requirement for a paid second zone fare from the Stoney Creek stub bus on to the major east-west routes. This is intended to weight the fares of Stoney Creek residents using the Hamilton system. However, it has the unfortunate effect of penalizing a number of City residents.

Canada Coach Lines services also operate through this area and are well patronized by Hamilton and Stoney Creek residents. But, while C.C.L. services connect directly with Downtown Hamilton, they do not provide transfer privileges with other parts of the H.S.R. system.

It would considerably assist the rationalization of service in this area if some joint and reciprocal agreement could be negotiated between the Hamilton authorities and the Town of Stoney Creek to provide service to both City and Stoney Creek residents as an extension of the basic City service. A fare subvention system operated jointly by the two municipalities in this area could be based on periodic analysis of passenger's place of residence.

There are a number of ways in which routing could be improved for the East End. One possible method of providing improved service would be the extension of the existing major east-west routes and the elimination of the transfer. To overcome the physical difficulties of extending trolley coach lines

east of the Red Hill Creek, semi-express services could be provided along the King and Cannon routes with every second or third vehicle being a diesel bus running through to Stoney Creek or the Vincent residential area at peak hour. This extension of the King and Cannon routes along Queenston Road would serve to eliminate the Stoney Creek stub bus and part of the present Nash-Barton route as well as permitting some reductions in Canada Coach Line services. It would provide direct service connections from the Vincent area and the Town of Stoney Creek to central Hamilton. In addition, it would permit the users of the Nash-Barton service to transfer to the King and Cannon services as well as the Barton service.

An alternative to lengthy extensions of the trunk routes would be a more limited extension supported by feeder buses. Such feeder buses might operate on fixed routes perpendicular to the major routes or else be demand-actuated (dial-a-bus) services which feed into the major routes at one or two selected transfer points.

A higher level of service should be effective in increasing the present usage in this area from the current figure of around 1000 trips per day. Conversion of some present Canada Coach Lines passengers to H.S.R. routes would make the H.S.R. services more viable and might permit the Canada Coach Lines to reduce some of their unprofitable service. The present population of around 20,000 in this area is likely to grow rapidly in 1972 and further residential and commercial development will help to build up patronage if a high level of service is provided.

Further, more detailed, analyses of the various service options and the likely effects of development on patronage are warranted.

Special Express Services and Worker Buses

It is apparent that there are high concentrations of employment in the industrial area on the north side of Burlington Street. Due to the street pattern existing bus services are not closely related to the actual desks and work benches of the prospective bus patrons who work in these industries.

The origin/destination information that is available, indicates that there is a wide dispersion of worker residences with no immediately obvious central collection point for an express bus service to the industrial area.

Before such an express bus is instituted it would be advisable to review other possible improvements to the system and their likely effects on passenger trips. In the first instance some means should be found to improve the interface problem which exists at the Stelco Hilton Works where the in-plant bus circulation system is poorly related to the public transit on Burlington Street. Secondly, efforts should be made to reduce the number of transfers which are made by workers in the C.B.D. and at Kenilworth Avenue, Barton Street and Cannon Street to reach the industrial area. Improvements in these areas should be explored in greater depth than has been possible in this preliminary study. Every effort should be made to increase the transit usage of industrial employees above the present 3000 per day which represents about 10 percent of the work force. Only after these possibilities have been fully explored, should attention be directed to express bus services.

The only reasonable way to test the validity of an express bus to selected industries is to institute a trial program based on a market survey with sufficient publicity and an adequate test period to determine what permanent ridership might be attracted. Such a demonstration program might be coupled with rearrangement of bus routes on the Mountain and could include some form of park-and-ride collection point or drop-off locations near one of the major Mountain intersections. This service might serve as an express replacement of part of the Fennell Service.

The advantages of these improvements would accrue mostly to the new passengers attracted and to existing "captive" passengers who would benefit from better service to their place of work. Since some of the work at the various industrial areas is shift work and the shift changes occur partly out of phase with the other peak traffic in the city, some suitable and effective express system could possibly be worked out which would permit two or more trips to be run in the peak period. Any trial or demonstration project involving express bus service should be approached with considerable caution since the H.S.R. reports

that a previous trial along similar lines was judged unsuccessful.

The only other major concentration of activity, which might warrant the institution of express buses, is the C.B.D. Limited stop schedules should be tested on one or more of the longer routes serving the C.B.D. The bus to the Town of Dundas already operates on this type of system. Buses running east of the Red Hill Creek might well be considered for this type of service, which is similar to the services already offered to East End passengers by Canada Coach Lines. Further integration of H.S.R. and C.C.L. services between the C.B.D. and the general Stoney Creek area appear warranted.

A semi-express service to the Mountain which would have a wider bus stop spacing and pick up only at transfer points with other routes would be another alternative worthy of exploration in the context of express running.

The higher quality and speed of service offered by express buses is usually appreciated by riders provided they are not required to pay a heavy fare premium. Testing is the only way to determine the likely acceptability of these services in Hamilton.

Special Lanes for Transit

The provision of a separate right-of-way for buses is generally a useful means to increase bus speed and service, however, in a downtown area, buses are still subject to delays for picking up and discharging passengers as well as delays at intersections. These will usually more than offset the advantages of a special lane. The only area where bus volumes are sufficiently concentrated to contemplate special lane designation is on James and John Streets south of the C.B.D. There is a heavy concentration of buses on these routes because of the convergence of the Mountain routes at the Jolley Cut. However, even on these routes, the number of buses does not exceed about 40 per hour at the peak period and this is scarcely sufficient volume to warrant the elimination of all other vehicles from one

lane of the existing four-lane streets. In any case, it is not apparent that the buses suffer undue delays in this area. Many auto drivers do move out of the curb lane to avoid delay when they see a bus ahead, and this effectively vacates the lane for buses and turning movements.

One area where particular delays were observed was at the junction of Gore Park and James Street where all the Mountain buses and some other routes are required to make a left-hand turn through a signalized intersection. This manoeuvre involves considerable conflict with pedestrians and consequent delays to the buses. While a special lane, as such, would have no effect towards alleviation of this problem it has been suggested in an earlier part of this report that a signal timing which allows a longer phase for clearance of turning buses should be explored at this location.

Control and Management Methods

A shift in ownership of urban transit systems from the private to the public sector has accelerated since the end of World War II. This trend is due to the inability of private companies to sustain, improve or extend transit services in the face of declining patronage and rising costs while obtaining any return on capital investment.

Control of publicly-owned systems has been established by two basic methods. In one, transit becomes a *department of municipal government* under direct control of the municipal council. In the other, control and responsibility are vested in a *board or commission*.

Similarly day-to-day *management* follows two basic patterns. In one, members of management are *employees*; in the other, a *management company* is retained under a contract of service.

The methods of control and management for publicly-owned transit systems depend on local circumstances such as the magnitude of the operations, the area to be served, legislation and the political climate. At present, the transit system in Hamilton is an incorporated company with all share

capital owned by the City. Complete responsibility for the Company is vested by legislation in the five-man Hamilton Transit Commission, four of whom are appointed by Council for a period of three years. The fifth member is a Council representative, appointed for each two-year Council-term. The Canada Coach Lines, a limited company providing suburban and inter-city services to adjacent municipalities, is a wholly-owned subsidiary of the Hamilton Street Railway Company. Transit commissioners serve as the Directors of both Companies.

Alternative methods of control and management are outlined below, following which conclusions are given with particular reference to Hamilton.

Direct Municipal Control

In this type of organization responsibility and accountability for policy rests with the elected representatives.

Advantages: The advantages claimed for this type of organization are that the policies and management of transit can be very closely integrated with those other activities which have an important impact on community development, such as land use planning, roads, parking, sewer and water services. Thus the technical, administrative and financial aspects of transit are not isolated from the responsibilities and authority of local government and accordingly can be more responsive to the overall requirements and problems of the community.

Disadvantages: There have been reservations that the commercial nature of transit operations does not lend itself to control by council at large or by a committee of council. This view is based on the belief that it is impractical to expect elected representatives to have sufficient knowledge or time to devote to transit matters. Effective participation is required to run a major business venture requiring continuity and consistency in policies affecting pricing, service and labour relations.

There is also concern that direct control by council leaves individual councillors and transit management vulnerable to day-to-day political pressures by individuals or interest groups which may be in conflict with policies adopted in the best interests of the overall community.

Due to these jurisdictional and practical problems associated with direct control of transit services by an elected group, a number of municipalities have opted to place the control of policies and accountability for these policies under an appointed commission or board.

Control by a Commission or Board

This type of authority has proved capable of overcoming many of the problems associated with direct control by local government.

Advantages: A commission or board can obtain special legislation to operate across municipal boundaries and for other rights which may not be available to a municipality.

In addition the members can be appointed for a pre-determined term as desired to maintain continuity in policies and to achieve a relative freedom from day-to-day political pressures. The right to appoint members to the commission or board is usually conferred in whole or in part on the owner municipality and the elected representatives therefore have control over the selection and the qualification of the members. The composition and powers of the commission are set by the enabling legislation. Elected representatives may or may not be eligible for membership.

Many commissions or boards are legally required to operate transit services at costs which can be met from revenues and this requirement may underlie some of the criticisms that such organizations are unsympathetic to the desirable social objectives which should be considered in providing transit service.

Disadvantages: Critics of this form of organization claim that they tend to perpetuate a piecemeal approach to transportation or that they tend to inhibit the unification of all government activities.

They also question the desirability of vesting the control of a municipally-owned transit system to a semi-autonomous appointed group which is not directly responsible and answerable to the electorate and thus may become out of touch with community needs.

Management by Employees

The role of management is to carry out the policies set by the policy group whether this is a municipal council, a commission, or a board. Effective management is only possible if the policies are clearly defined, management targets are set, and the day-to-day running of the system is left in the hands of management. Interference in the day-to-day management of the system by the policy group can only lead to confusion as to responsibilities and, under these conditions, management can no longer be held accountable for meeting performance or financial goals. The management function may be delegated to officers appointed and employed by the agency or to a group retained to manage the system under contract. The choice is based on the policy group's decision as to how the most effective management can be obtained.

Appointed officers would be local government employees if control is vested in the municipality, or employees of the commission or board if this form of organization exists. In the former case the chief official may have other duties in addition to his responsibilities for transit, such as roads and traffic as in Winnipeg.

The intent in this approach is to ensure that all transportation services are coordinated in one department. There is also the philosophy that this would place too much responsibility in one department and that a better approach is to separate the various transportation functions to maintain a balance in emphasis and ensure that decisions on the respective roles for roads, parking and transit rest with council.

Under the commission form of organization, the management function may be under a general manager, to whom all the other officers report. Alternatively this function may be divided among several officials, each one reporting directly to the commission for his particular area of responsibility; e.g. operations, legal, financial, etc.

Management by Contract

A less common method is to hire a private management group for an annual fee under renewable contract. Management by contract is usually accompanied by some financial incentive to the management group to equal or better the service and financial goals set by the policy group.

Advantages: The advantages claimed for this approach are that more businesslike management can be achieved which will be able to resist interference in the management function more effectively than employees; also that management can readily be changed if the desired policies and targets are not met.

Conclusion

Definitive recommendations on the desirable means of control and management of the Hamilton Street Railway Company are beyond the scope of this preliminary study. However, some general comments are pertinent.

The Hamilton Transit Commission was set up under Provincial legislation to meet the requirements for public ownership of the former private company which operated transit service in Hamilton following a Municipal Board Order stipulating conditions under which the purchase could be financed by the City. Present Provincial legislation may restrict the City of Hamilton itself from carrying out a part of this function. Control by a commission may be essential unless the operating area is confined or legislation changed. The Commission policies are governed under Provincial legislation by the City of Hamilton Act 1960. In effect this stipulates that the Commissioners must keep the system self-sufficient and gives Council the control over the appointment of the Commissioners.

Legislation apart, it is opportune for Council to review the principle of control by a Commission and management by company officials and to decide if this is the best form of organization to administer the transit system owned by the City. The foregoing discussion has highlighted the main advantages and disadvantages of the alternatives in common use in Canada. The main issue is whether a change from Commission control to direct control by City Council would improve the opportunities for better transit service to meet the needs of residents. Alternatively can the Commission, because of its relative freedom from political pressures and the composition of its members, provide a more businesslike approach to management not normally required in other municipal activities?

In reaching a decision it should be determined if there are inherent shortcomings in the commission type of organization for transit in Hamilton which may inhibit coordination with other departments or responsiveness to community needs. Any such problems should be minimal with a commission composed of members of high calibre and vision whose policies would reflect the broad goals of Council. However, the Hamilton Transit Commission must work within the legal and fiscal restraints governing its actions and it would be desirable to review these requirements to determine if they should, and could be amended.

In considering the possibility of direct control by City Council, it should be established if this is feasible under the Municipal Act and how this may affect the area of service and financing of the system; particularly with regard to Canada Coach Lines.

In the final analysis the choice is largely dependent on the political and management philosophy which each community believes is best to achieve the most effective transit service for the residents. A great deal of research and study by legal, accounting and transit specialists was undertaken by the City before the existing ownership structure and administrative method was devised. It would be well to review this work to determine whether the factors influencing the decisions taken at that time have the same bearing to today's context.

As discussed earlier in this report, the Hamilton Transit Commission is providing transit service which compares favourably with that in other cities in terms of coverage and cost. Accordingly, it is strongly recommended that suggested areas and methods to improve the effectiveness of the Commission should be thoroughly explored before the decision is reached that there is any real need for a change in authority and control.

Marketing

The marketing component of this preliminary phase of the Hamilton Transit Study was carried out by two marketing specialists from P.S. Ross & Partners. Detailed discussions were held in early October with several senior executives of the Hamilton Street Railway Company covering all aspects of the Company's marketing and public relations philosophy and practice. Also reviewed were the organization and personnel involved with marketing activities, research and planning activities, advertizing and communications with the press, public and others.

As part of this study promotional material currently being used by the Company as well as material used in former years was examined as were the press clipping files for the past several years. The Company's annual reports for the past ten years were reviewed and analyzed for trend information on operating performance and marketing effectiveness.

It is a basic premise of this report that the fundamental marketing objective of the H.S.R. is to persuade more Hamiltonians to use buses rather than cars. The recommendations of this part of the review are, therefore, specifically oriented towards the steps which can be taken immediately to provide a proper framework for achieving this goal as quickly as possible.

The public relations and marketing functions have been considered as closely interrelated throughout this report because of the overriding and immediate importance, of gearing all the Company's efforts towards the marketing objective of increased ridership. No close distinctions have therefore been made between the two functions even though the public relations program could have

other objectives as well. At this stage in the Company's development, it is essential to focus all promotional activities directly on increased sales.

This review concentrated exclusively on the regular urban route operations of the H.S.R. The terms of reference did not include subsidiaries, sight-seeing and charters.

Findings: Current Marketing Effectiveness

Commercially, the Company's marketing performance has not been impressive in the past few years. The number of revenue passengers carried in 1970 was 9 percent down from 1967. The downward trend in passengers is typical of the transit industry as a whole, both in Canada and in the United States. Published figures, compiled by the Canadian Transit Association, show a consistent decline in total passengers carried by all properties each year since 1967 - this in spite of the ever-increasing populations in our metropolitan cities, including Hamilton. It is interesting to note that passengers carried in Hamilton in 1970 are less than half the number carried at the conclusion of the War - 25 years ago - while operating mileage has increased by 50 percent. The added decline of regular route passengers due to the ten-week strike in 1971 will, of course, aggravate this condition.

This declining share of the market, when viewed against the expanding Hamilton population emphasizes the preference of the majority of people to travel by car and clearly points to the absolute necessity for a strong and positive marketing policy even to retain the current percentage of the population.

It is recognized that there are several constraints affecting the marketing initiatives available to the H.S.R. which are not usually present in normal commercial situations. Quite apart from escalating operating costs and the rapid expansion of automobile ownership, constraints such as the obligation to provide expanding route mileage, inability to raise fares at will, inability significantly to curtail overall service levels or to close down uneconomic

routes, have contributed to the decreased profitability of the H.S.R. (and urban transit companies virtually everywhere in North America).

Within the context of these constraints, we consider that the most appropriate type of marketing program for the H.S.R. is one which emphasizes increasing fare box revenue through concentrated sales promotion and public relations activity. It is in this area that the greatest opportunities for increased marketing effectiveness lie.

Findings: Current Marketing and Public Relations Activities

While a number of activities related to marketing are being carried out at the present time, the Company does not have a formal marketing program or organization. This is a serious limitation on any attempt to improve marketing effectiveness and as a consequence the present approach to marketing lacks planning, coordination and impact. It is passive rather than active.

In former years, a public relations function did exist in the organization. With Mr. McCulloch's death, the public relations function, including advertising and personnel, was not restaffed. Certain activities such as the "Transit News" were not continued.

With regard to the marketing related activities which are carried out the following comments can be made:

- * The Company does not advertise on a regular basis in the local media. Press releases are, however, issued from time to time on an ad hoc basis.
- * Informally, there is a considerable amount of marketing and public relations activity undertaken by various people in the organization. In the main these activities are carried out well.
- * Most of the material issued to the public is informational and relates to schedules, route changes, detours and the like. In some cases, however, the disclaimer of responsibility is the

most noticeable item on the page and this degree of emphasis is questionable.

- * From our review of the press clipping file, the citizens of Hamilton do not seem to regard lack of information about bus schedules and services as a problem.
- * The map and points of interest sheet distributed to the Hamilton and District Visitors and Convention Bureau is well designed although the quality of the paper and the printing is poor, which results in a negative first impression.
- * No file is kept on complaints from the public. We have been assured, however, that complaints are handled effectively and promptly. Complaints relating to bus services are handled by the Director of Research and complaints about bus drivers are referred to the Operations Superintendent.
- * With regard to the bus drivers, the tone of the Manual of Operating Instruction is well set by the first sentence in the book "The safety of the people is the first rule". More emphasis, however, should be given to the important marketing role of the drivers as the principal point of contact between the Company and its customers.
- * No opinion surveys are carried out on a regular basis on matters relating to the H.S.R.

Findings: Image Considerations

From the limited data available, we were unable to draw any firm conclusions with respect to the image of the H.S.R. with the general public. The press file contains many critical and many complimentary mentions.

We would draw attention to the now anomalous name of the Company. In our opinion, while recognizing the importance of the sentiment factor, the 19th century type of name detracts from any attempts to promote a modern and progressive image for the Company. It is not consistent with the rapid transit era.

Recommendations

Our review of the H.S.R's. marketing and public relations activities lead us to make the following short-term recommendations:

- * The public relations and marketing function should be reinstated with an annual plan and a defined budget. To do this effectively could well require that an individual with the appropriate qualifications be recruited from outside the Company.
- * The primary emphasis of the public relations and marketing function should be on advertizing campaigns in the local media oriented towards increasing ridership. The content of such advertizing campaigns should be based on periodic market research surveys so as to relate directly to the needs and concerns of both current riders and current non-riders.
- * A secondary emphasis should be placed on modernizing the Company's image with the Hamilton general public and in this context, consideration should be given to the advantages and disadvantages of preserving the Company's traditional name.
- * Maximum effort should be devoted to keeping the local media well supplied with information on the Company's activities, progress and, where relevant, problems.
- * Complaints should be systematically filed and kept for reasonable periods of time for analysis and planning purposes.
- * A standardized format should be developed for the Company's bus schedules and other "take one" material which is made available to the public.

In summary, the Company needs to take a more positive and coordinated approach to all its marketing and public relations activities. To do this management will have to take the lead and show their marketing attitude to the rest of the organization. Beyond the short-term recommendations above it will be necessary to develop a framework for the marketing activities of the H.S.R. which will be based on a proper marketing plan with defined objectives and strategies.

APPENDIX A

TERMS OF REFERENCE

TERMS OF REFERENCE

A Transit Study -

to be undertaken by the Department of Highways and the Hamilton Street Railway Company;

pertaining to Urban Transit improvement and development within the City of Hamilton.

A study will be undertaken forthwith and developed as quickly as possible with the hope of both completion and implementation prior to the end of 1971.

- A. A review of and draft replies to the briefs recently submitted to the City Council containing suggestions and recommendations respecting the present and future transit system.
- B. A review of the present bus routes within the City with a view to identifying service improvements, utilizing all new technical developments that may be available for improvement of the system.

In more detail, Paragraph B will involve a study of the Hamilton Street Railway with respect to:

- 1. Route Planning - a general review of the layout of the Transit System to ascertain if the area within the municipal boundaries is reasonably well covered, and the layout pattern is consistent with good transit planning.
- 2. Scheduling - a general review of the schedules used to ascertain if an acceptable service is offered the public, bearing in mind legislation requires the system to be self-supporting and retire the City debentures issued to purchase the system.

3. Extent and Level of Service
 - compare with other cities of similar size to ascertain the relativity between the number of miles operated, the vehicles and number of operators employed in relation to the population served.
4. Equipment
 - a study of the number and capacity of vehicles employed, the number of stand-bys on hand in relation to hours and miles operated; in other words, too much or too little equipment? And, is it as fully employed as possible or wasted?
5. Comparative Operating Costs with other Systems
 - This should be a study of cents per mile for:
 - a. Maintenance
 - b. Operators' wages (adjusted to a common wage)
 - c. Gas and Oil
 - d. Accident Costs
 - e. Salaried and Administrative Costs
 - f. Total Costs relative to Total Revenues
6. Fare Structure
 - comments on and recommendations if possible:
 - a. Should it be adequate to meet all costs?
 - b. Should it be subsidized, or on a cost sharing basis?
 - c. Should a Zone Fare System be employed?
 - d. Should the fares charged be on a per mile basis?
7. A Review of the East End of the City
 - - a. present treatment
 - b. suggesting an Outline Plan for routes to more adequately cover the area and yet lend itself to future extensions within the present financial limitations.

8. Special Express
Services

- a. to the industrial areas
- b. to other activities or areas

A brief paragraph to state feasibility and non-feasibility - advantages and disadvantages.

9. Special Lanes
for Transit

- a review of this subject to show the advantages and disadvantages of special lanes or special routes for transit and an opinion as to whether such might be used in Hamilton, and where - the implementation of which might more readily be referred to Phase 2 of the study.

10. Organization
and Control

- an examination of and comments regarding the advantages and/or disadvantages of control by a Commission, a Management Contract, or a City department.

11. Marketing

- suggestions for improved public relations, the publishing of schedules, advertizing, etc.

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